SOME NEW OR INTERESTING ORTHOPTERA FROM PERSIA, BALUCHISTAN AND WESTERN INDIA

By

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(*with a Plate.*)

The present paper is based mainly on an interesting collection of Orthoptera sent to me by the Bombay Natural History Society for identification. The results obtained in working out the collection corroborated once again my statement* that the fauna of Orthoptera of the Asiatic deserts is most inadequately known and includes many undescribed and very striking forms. I earnestly hope that my papers in this Journal* will draw attention of entomologists who have the opportunity of collecting in the Punjab, Sind, Baluchistan, Afghanistan, Mesopotamia and Persia to this badly neglected group of insects; there is no doubt that even most casually made collections will bring something new, or, at least, throw some light on the distribution of known species.

The types of new species described in this paper have been presented by the Society to the British Museum, through the Imperial Bureau of Entomology.

Mantidæ.

1. *Eremiaphila laevivrons* Uv.

Baluchistan: Hazarganji 40 miles S. E. of Khozdar, 19, ix, 1917, 1 ♀ (J.E.B. Hotson). The species has been quite recently described by me from Muscat, Arabia (Journal Bombay Natural History Society, xxviii, 1922, p. 351), and the specimen from Baluchistan is exactly alike the type.

Acrididæ.

2. *Acantholobus curticornis* Hanc.

India: Deolali, Oct., 1915, 1 ♀ (N. B. Kinnear).

This species has been described by Hancock (Rec. Ind. Mus., xi, 1915, p. 92), from Satara district, Bombay Presidency, and not recorded since. The specimen before me agrees in all details with the original description.

3. *Chloebora crassa* (Walk.)

India: Nasik, 1,900 ft., Sept., 1914, 1 ♂, 2 ♀ ♀ (N. B. Kinnear).

This is the first exact record of this species since Walker described it from "N. Bengal" without giving more precise locality.

The genus *Chloebora* seems to me hardly separable from *Humbe*, but I cannot express a definite opinion on the matter, as I know only one species of *Chloebora* which is not even the genotype.

4. *Oedipoda miniata* (Pall. *nec. auct*).

1771. *Gryllus miniatus*, Pallas, Reise durch versch. Prov. *etc.*, p. 467.
1839. *Oedipoda gratiosa*, Serville, Ins. Orth., p. 727.
1923. *Oedipoda miniata*, Uvarov, Novitates Zoologicae, Vol. xxx, p. 70.

Persia: Shiraz, 14, viii, 1920, 1 ♀ (J. E. B. Hotson).

I have shown in the paper, quoted above, that the name *miniata* Pall. has been quite incorrectly applied to another species of the genus, *O. germancia*, Lat.

5. *Oedipoda schochi* Sauss.

S. Persia: Akbarabad, 5, x, 1919, 1 ♀ (J. E. B. Hotson).

The specimen has got the hind wings with a distinct violet tinge; their band almost reaches the inner margin; the head and pronotum are strongly rugose,

* See this Journal, xxviii, pp. 71, 351 and especially p. 1149.

the latter with very sharp, though irregular, lateral carinae and the hind margin of lateral lobes distinctly festooned. Its dimensions are, as follows :—length of body 23, pronotum 7, elytra 23, hind femur 15 mm. On the whole, it is a comparatively slender insect, scarcely more robustly built, than *O. miniata* and therefore it cannot be identified with the typical Syrian form of the species which is, according to Saussure's description a larger and more heavily built insect. Our specimen seems to come nearer sub-species *caucasica*, Sauss. but hardly identical with it. A series of four specimens of *O. schochi* in the British Museum from Kazvin, N. W. Persia, seem to agree fairly well with the original description of the Syrian form. On the other hand, one female in the same Museum, from the Lar valley, S. Persia is small, but heavily built, with rugosities on the head and pronotum sub-obliterate, wings pale bluish and their fascia broad, almost reaching the inner margin. It is impossible yet to use these scanty materials for a study of geographical variations of the species, but I wanted to draw attention of systematists to the necessity of such a study.

6. *Sphingonotus obscuratus* (Walk.).

1870. *Oedipoda obscurata*, Walker, Zoologist, xxviii, p. 2300.
1884. *Sphingonotus brunneri*, Saussure, Prodr. Oed., pp. 197, 206.
1888. *Sphingonotus brunneri*, Saussure, Addit. ad Prodr. Oed., p. 87.
1898. *Sphingonotus brunneri*, Zubowsky, Ann. Mus. Zool. Acad. Imp. Sc. St. Petersb., iii, p. 97.
1902. *Sphingonotus lameerei*, Finot, Aun. Soc. Ent. Belg., xlvi, p. 434.
1905. *Sphingonotus brunneri*, Jacobson and Bianchi, Priamokr Lozhnos Ross. Imp., p. 276.
1911. *Sphingonotus brunneri*, Ikonnikov, Revue Russe d'Entom., xi, p. 358.
1913. *Sphingonotus lameerei*, Rehn, Bull. Soc. Ent. Egypte, iii, p. 46.
1913. *Sphingonotus brunneri*, Bolivar, Novit, Zool., xx, p. 612.
1914. *Sphingonotus brunneri*, Uvarov, Revue Russe d'Entom., xiv, p. 221.
1914. *Sphingonotus brunneri*, Werner, Sitz. Akad. Wiss. Wien, cxiii, Abt. i, p. 394.
1919. *Sphingonotus octofasciatus*, Innes Bey, Bull. Soc. Ent. Egypte, xi, p. 38 (footnote).
1919. *Sphingonotus quadrifasciatus*, Innes Bey., *l.c.*, pp. 45, 47.
1919. *Sphingonotus lameerei*, Storey, *l.c.*, p. 65.
1919. *Sphingonotus quadrifasciatus*, Storey, *l.c.*, p. 65.

S. Persia: Abadeh, vi-vii, 1916, 1♀ (P. Paschen); N. Persia: Shahurd (Stockholm Museum).

This beautiful species is so distinctly marked on the wings that the above synonymy cannot be subject to any doubts. The description of *O. obscurata*, though far from being good, is nevertheless quite sufficient to recognise in it the same insect, which has been more fully described by Saussure, as *S. brunneri* and the Walkerian name must be used for the species. Bolivar (*l.c.*) has stated already that *S. lameerei* is a pure synonym of *S. brunneri* and I entirely agree with him. Rehn's opinion (*l.c.*) that the species may be a mere geographical race of *S. satrapes* Sauss. seems to be founded not on a comparative study of both species, but on Finot's remark in his description of *S. lameerei* (*Lc.*), since the pronotal structure is quite different in *S. satrapes* and *S. obscuratus*. As for *S. quadrifasciatus* of Innes Bey, its diagnosis, although extremely poor, leaves no doubt that it refers to *S. obscuratus*; it is very odd that Innes Bey could not determine his insect by Saussure's keys and descriptions as *S. brunneri* which he does not mention at all; still more incomprehensible is his suggestion that Rehn's record of *S. lameerei* should be referred to *S. octofasciatus* while Rehn records the latter species, as well. I leave out of consideration *S. apicalis* Sauss.

which also seems to be very close to our species, because the material studied by me does not permit me to form a definite opinion on the value of characters used by Saussure to separate it from *S. brunneri*.

In the above synonymy I have intentionally avoided references to the Catalogue of Kirby, since that author brought such a confusion into the synonymy of species of this genus (he regarded, for instance, *S. balteatus* of Saussure as being not the same insect as *S. balteatus* of Serville though Saussure re-described Seville's type) that it is much simpler to compile a new list of synonyms, than to correct Kirby's mistakes.

The list of references given above includes, I believe, all reliable records of the species, which are known from a very large area, in fact from the whole of the Eremian region. The actual records are, as follows: Algerian Sahara (Einot, Werner), Egypt (Rehn, Innes Bey), Sinai (Walker), N. and S. Persia (my records in this paper), Asia Minor (Saussure's doubtful record), Transcaspia (Uvarov) and Semiretchye, E. Turkestan (Zubowsky, Ikonnikov). The species seems to be nowhere common as most records are based on single, or a few specimens; this may be explained, however, not only by the actual scarcity of the species, but also by its extreme wariness observed by Werner (*l.c.*).

It is very likely that an insect of such a wide distribution gives several geographical races, but more material is necessary before this question may be attacked successfully; I should like to mention only that the form occurring in Semiretchye is according to Zubowsky (*l.c.*) remarkable for the width of the wing fascia, while the form from Sahara has got the fascia comparatively narrow and the apical spots small; thus it seems not impossible that the name *lameerei* may be used as subspecific, while *apicalis* may also represent but a N. Persian sub-species of *S. obscuratus*.

7. *Sphingonotus balteatus* (Serv.).

1839. *Oedipoda balteata*, Serville, Ins. Orth., p. 734.
1870. *Oedipoda latifasciata*, Walker, Zoologist, xxviii, p. 2299.
1884. *Sphingonotus amaranthinus*, Saussure, Prodr. Oedip., p. 206.
1888. *Sphingonotus balteatus*, Saussure, Addit. ad Prodr. Oed., p. 86.
1919. *Sphingonotus bifasciatus*, Innes Bey, Bull. Soc. Ent. Egypte, xi, pp. 45, 48.

India: Perim Island (British Museum); Arabia: Aden (also).

This is another species of *Sphingonotus* about which there is a great deal of confusion, especially in Kirby's Catalogue, quotations from which it would be useless to give here. As the specimens from the Perim Island in the Gulf of Cambay are practically topotypical (the type was from Bombay) and agree in all details with Serville's original description, I believe myself justified in my attempt to clear up the synonymy of the species.*

O. latifasciata Walk. the type of which does not exist is undoubtedly conspecific with *balteatus* Serv., as Walker refers to his species the fig. 9 of Plate 7 in Savigny's "Description de l'Egypte" which represents *balteatus*, Saussure, in *Prodromus* described the species under the name *amaranthinus*, while he mistook for *balteatus* another smaller species which has been mistaken for *balteatus*, also by all other authors; since that species is not known to me from Asia, I abstain from its description here and will do it in my paper on Egyptian Orthoptera, now in preparation. In *Additamenta* Saussure redescribed Serville's type and stated that it is identical with his *amaranthinus*; Innes Bey introduced one more name for the same species, *S. bifasciatus*, which cannot be

*As a matter of fact I did it once already (Bull. Mus. Caucase, xii, 1919, p. 157), but at that time I had not sufficiently mastered the general systematics of this difficult genus and relied too much on literature, so that I must revise now the conclusions reached then.

accepted since his only reason for doing it was that the name *balteatus* has been used by various authors for different species and therefore must be rejected.

All the above synonyms are, however, to be regarded as such only when the species is studied, as a whole, since some of the names may be used in connection with different geographical races of *balteatus*. In fact, there is a remarkable tendency in this species to a geographical variation in the color of the basal disc of wings, and the British Museum material enables me to distinguish the following four sub-species :—

1. *S. balteatus balteatus* (Serv.)=*amaranthinus* Sauss.—Disc of the wings light violaceous ; hind tibiæ blue on the inside—Bombay, Perim Island, Aden.
2. *S. balteatus latifasciatus* (Walk.)=*bifasciatus* Inner.—Disc of the wings violet-rose ; hind tibiæ violet-rose on the inside.—Egypt ; Sinai.
3. *S. balteatus roseus*, sub-sp. n.—Disc of the wings light rose ; hind tibiæ rose on the inside.—Somali ; Massowah.
4. *S. balteatus himalayanus*, sub-sp. n.—Disc of the wings blue ; their fascia broader than in other races ; hind tibiæ bluish-grey on the inside.—Baltistan.

8. *Sphingonotus intutus* Sauss.

L. Persia : Abadeh (P. Paschen) ; Lar valley, viii, 1905 (E. Grant Duff ; British Museum).

The specimen from Abadeh has been recorded by me* as *S. balteatus*, but I believe now that the differences in the sculpture of the pronotum and in the shape of the discoidal vein given by Saussure for separating *S. intutus* from *S. balteatus* are of specific value. On the other hand, I am not clear about the differences between *S. persa* and the two species just mentioned, while *S. nebulosus* Sauss. (*nec.* F.-W. !) seems to me hardly the same insect as the one described under that name by Fischer v. Waldheim and suspiciously alike *S. intutus*. The whole question can hardly be settled without studying the types and checking their characters on large topotypical series of specimens.

9. *Tmethis saussurei violacea*, Uv.

S. Persia : Shiraz, Zarghun, Badgamir, 12. vi-2. vii, 1920 (J. E. B. Hotson).

I have described this insect †as a mere colour aberration, but all South Persian specimens seem to possess the colour characters separating them from more northern representatives of the species, and must be regarded as a distinct subspecies.

The typical sub-species has been recorded by M. Burr under the name of *Sphingonotus satrapes* (!) from Kermanbalk (Ent. Rec., xii, p. 240) and from Seir, near lac Urmia (Linn. Soc. Journ., Zool., xxvi, 1899, p. 417) in N. Persia ; this I may state on the strength of a study of his original specimens, now in the Oxford University Museum.

10. *Tmethis cinerascens* (St.).

Of this species I have studied a male co-type, for the loan of which I am obliged to Prof. Y. Sjöstedt of the Stockholm Museum, and it agrees well with my figure (Bull. Mus. Caucase, xii, 1918, p. 50, fig. 5), only the pronotum is less constricted in the prozona, and its median keel is not as distinct as in the figure. I must point out, however, that the shape of pronotum and, particularly, the degree of development of its keel is subject to unusual individual variation in this species. In fact, I had an opportunity of studying an extensive series of specimens in the Caucasian Museum in Tiflis, taken near Teheran at the same date and it con-

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Journal, Bombay Natural History Society, xxviii, p. 361.
† *l.c.*, p. 362.

tained all forms transitional between those with fully-crested pronotum and those with the keel very low in prozona and altogether obliterated in metazona.

Since the development of the pronotal keel is the only difference between the genera *Tmethis* and *Eremoplana=Eremopeza*, Sauss., of which *cinerascens* is the genotype, it is obvious that these genera must be united, while two more species included in *Eremopeza* later on, *vic. granulosa* (Walk.) and *brachycera*, Kirby, may be more conveniently transferred to the genus *Eremocharis* (see below) until a revision of the genera of this very little known group may be undertaken.

Stal has not given the exact locality of his types, which is Shahrud, N. Persia and Teheran (see above) is the only other locality whence the species is known.

11. *Tmethis hotsoni*, Uv..

Baluchistan: Nok-Chah, 70 miles S. of Kharan, about 5,500 ft. 23 vi, 1918, 1 ♀ (J. E. B. Hotson).

Another very well preserved specimen of this largest known species of *Tmethis* just described by me (see this Journal, xxviii, 1922, p. 363). I wonder if the insect described by Kirby (Fauna Brit. India, Acrid., p. 158) under the name *Sphingonotus gigas* from Quetta is not a *Tmethis*, in which case it must be conspecific with *T. hotsoni*; the description of *S. gigas* is, however, most unsatisfactory and nothing can be said as to what genus it belongs to, until the type which is in the Indian Museum, Calcutta, may be studied.

12. *Eremocharis brachycera* (Kirby.)

1914. *Eremopeza brachycera*, Kirby, Fauna Brit. India, Acrid., p. 159 fig. 110.

Baluchistan: Quetta 1 ♀ (type, British Museum); Kelat,—viii, 1917, 1 ♀ (J. E. B. Hotson); Har boi, 12, viii, 1917, 2 ♂♂ 3 ♀♀ (J. E. B. Hotson).

As the original description of this species by Kirby is very poor and in some respects even incorrect, I believe it useful to give a re-description of the type while the fresh material collected by Mr. J. E. B. Hotson enables me to draw some additional notes on the specific characters.

The characters of the type are, as follows:—

♀ Antennæ as long as the head and the prozona of pronotum put together consisting of elongated joints. Face vertical, rugulose and with scattered round granules; frontal ridge above the ocellum strongly compressed, narrow and not sulcate, seen in profile excised just below the ocellum, obliterate farther down. Vertex strongly sloping, scarcely impressed, with scattered indistinct granules and with a subobsolete, narrow longitudinal sulcus; its margins not raised, very obtuse; no frontal or temporal foveolae; radial postocular ridges composed of rounded granules; occiput with a very narrow median sulcus the margins of which are slightly raised and with several transverse ridges. Pronotum thick and depressed, in round granules, anterior margin obtusely produced in the middle, sinuate laterally and obsoletely crenulate; prozona tectiform, with the crest convex in profile, distinctly cut by transverse sulci and finely sulcate along the middle; median sulcus deep, placed just before the middle; metazona practically flat, with obsolete granules and rugosities, Elytra reaching to the hind-knees, coriaceous. Middle femora irregularly granose along the upper side. Hind femora with the upper carina obtusely serrate and undulate; upper outer area with several transverse granulated ridges and small round granules; lower carina irregularly undulate. Margins of pronotum, sternum and legs densely pilose. Fascia of the hind wings subobsolete, emitting a radial branch (which is omitted in Kirby's figure). The specimen is much discolored by alcohol and color characters of the type are of no value.

Amongst the specimens collected by Mr. Hotson a female from Kelat is very like the type in its dimensions but somewhat more rugose on the pronotum. Its elytra extend practically to the hind knees ; hind femora are clay-colored on the inside, with a bluish-grey transverse fascia on the base of the lower inner knee-lobe ; hind tibiæ on the inside with the base and a streak along the middle not reaching to the apex, bluish-grey ; their inner spines dark-brown on the inside with a paler preapical fascia. Specimens from Harboi (2 ♂ ♂, 3 ♀ ♀) are distinctly smaller and the elytra in the females extend only to the narrowed part of the femora, while in the males they reach to the hind knees ; hind femora are faintly reddish on the inside with the fascia on the base of the lower knee-lobe blackish-blue ; hind tibiæ with the inside bluish-grey basally and dirty-vinaceous in the rest, with the inner spines chocolate-brown on the inside, fasciated with brown before the apices. Wings are very faintly greenish in both forms which I hesitate to separate even as sub-species until the species is better known and the extent of its individual variability may be appreciated. The dimensions of the specimens studied by me are, as follows :—

	Quetta.	Kelat.	Harboi.	
	♀ (type.)	♀	♂	♀
Body	44mm.	45mm.	27mm.	37mm.
Pronotum ..	(the tip broken off.)	15	8	12·5
Elytron	27	24	16·5	14
Hind femur ..	21	20	12	14

13. *Tropidauchen edentulum*, sp. n.
(Plate I, fig. 2.)

♂. Head densely sabuloso-granose, frontal ridge in profile convex, obtusely excised in the middle ; seen from the front it is widened and foveolate at the fastigium, narrowed above the antennæ, somewhat widened below them, narrowed below the ocellum, gradually and not strongly widened towards the clypeus. which it does not reach, since its marigns are raised and regular above the ocellum only. Lateral facial keels obliterated. Fastigium of vertex strongly sloping, much longer than broad, open in front, with the anterior margins only smooth, while the lateral ones are granose like the whole of the head and feebly raised ; the surface impressed, with a fine, but distinct sulcus along the middle.

Eyes oval-shaped, higher than the subocular distance. Pronotum moderately compressed with the crest comparatively thick, not lamelliform, regularly convex in profile ; its anterior angle not acute, reaching the line connecting hind margins of eyes ; the whole surface densely sabuloso-granose with irregularly scattered acute spine-like tubercles ; the sulci well distinct, but fine ; the foveolæ feebly developed, the first and the fourth one being almost obliterate ; hind angle of the pronotum acute, bituberculate, and not bidentate at the apex. Prosternal spine acutely conical, somewhat compressed laterally. Mesonotum and metanotum, as well as the first tergite sabuloso-granose, with very few small spine-like tubercles ; first tergite with the crest inflated and the hind angle moderately acute, obtusely denticulate ; tympanum large, oval-shaped ; second tergite sparsely sabuloso-granose, with but two pairs of pointed tubercles at the hind margin, the lower ones being very small ; the remaining tergites indistinctly rugulose, without grains or tubercles. Subgenital plate recurved, with the apex narrowly truncate and bituberculate. Hind femora with the carinæ but feebly dilated, distinctly narrowed apically ; upper margin strongly spined throughout, lower margin also spined, but the spines are shorter and less acute ; the surface of the externomedian area not granulose, that of the lower and upper areas sparsely sabuloso-granose.

General coloration grey ; abdomen beneath ochraceous. Hind femora with the lower inner area lead-colored. Hind tibiæ and the inside of their inner spines black ; outer spines tipped with brown. Hind tarsi grey.

Length of body 29 ; pronotum 14 ; hind femur 15 mm.

S. W. Persia : Abadeh, vii—viii, 1916 (P. Paschen).

The essential characters of the new species are to be seen in the pronotal crest more distinctly arched than in other species of the genus (with the exception of *T. securicolle*), in the sand-like granulation of the head, pronotum and basal parts of the abdomen, in the hind angle of the pronotum being bituberculate and not bispinose, in the conical prosternal spine, in the subgenital plate bituberculate apically, as well as in the coloration of hind legs.

14. *Tropidauchen sabulosum*, sp. n.

(Plate I, fig. 1.)

♀. Head very densely sabuloso-granose ; frontal ridge in profile strongly convex in the upper half, very deeply excised in the middle and practically straight in the lower portion; seen from the front it is of the same structure as in *T. edentulum*, but suddenly and strongly widened just before the clypeus ; its margins are fairly distinct throughout, though in the lower portion less regular. Fastigium of vertex strongly sloping, longer than broad, open apically, with the margins irregular and granulated ; the surface not strongly impressed, irregularly rugulose in the hind portion, with a fine median sulcus. Eyes oval-shaped ; their height distinctly less than the subocular distance. Pronotum moderately constricted, with the crest thick and low, practically straight in profile ; the whole surface very densely sabuloso-granose, with a few scattered obtuse tubercles ; sulci fine ; foveolæ of the crest small ; front angle distinctly less produced than in other species ; hind angle extending just a little behind the mesonotum, bituberculate. Prosternal spine acutely conical, slightly curved backwards somewhat compressed laterally. Mesonotum, metanotum and two first tergites sabuloso-granose, with a few scattered obtuse tubercles ; tympanum large, open ; hind angles of tergites somewhat produced, moderately acute ; hind tergites indistinctly rugulose and with sparse, minute granulation. Hind femora not strongly narrowed apically ; upper carina with about 9-10 short oblique spines ; lower carina undulated, with a few subobliterate short and blunt spines ; the whole outer surface sabuloso-granose.

General coloration pale ochraceous-grey; all sternites of the, abdomen, as well as the tergites from the third backwards though less conspicuously, variegated with black and brownish-orange colors. Hind femora with the lower inner area grey. Hind tibiæ with the inside bluish-black turning blackish-violaceous near the apex ; inner spines black ; outer spines violaceous inwardly and grey outwardly. Hind tarsi inwardly violaceous.

Length of body 48 ; pronotum 15.5 ; hind femur 20 mm.

N. Persia : Kermanbalk (Miss Sykes ; M. Burr's collection, in the Oxford University Museum).

This insect has been recorded by Burr (The Entom. Rec., xii, 1900, p. 241) under the name of *T. securicolle* Sauss., but it differs strongly from the latter species, as well as from other known ones by the shape of pronotal crest, by peculiar granulation and by the coloration of abdomen and hind legs.

The number of known species of *Tropidauchen* is thus raised to six, and the genus seems to be restricted to the ancient Iranian plateau, since there is only one species, *T. securicolle* which has been doubtfully recorded from Syria. Of course, there is a possibility that some of the known species may prove to be not more than geographical forms when large materials are studied, but in the meantime it is best to describe them carefully and to keep separately from each other.

Lyrotylus, gen. nov.

♀. Of middle size, robustly built. Antennæ short and thick. Face moderately reclinate, broad, rugose ; frontal ridge depressed, with a lyra-shaped dilatation above the ocellum, parallel below it ; its margins very distinct and

callous throughout, and the surface feebly impressed, rugose. Fastigium of vertex strongly sloping, not separated from the frontal ridge, its margins subobliterate ; the surface not impressed but very coarsely punctured ; temporal foveolæ not at all impressed, large, very coarsely punctured. Lateral facial keels strongly raised, practically straight. Eyes irregularly-elliptical, the anterior margin being practically straight ; their vertical diameter twice as large as the horizontal one which equals to the subocular distance ; distance between the upper ends of the eyes is distinctly broader than their horizontal diameter. Pronotum thick, subcylindrical, somewhat narrowed in front, coarsely rugose ; its disc regularly convex both in transverse and in longitudinal direction, intersected by three deep sulci, metazona being about one-half of the profona, very broadly rounded behind ; median keel very low, subobliterated in the anterior part of the prozona and in the metazona ; no trace of lateral keels. Prosternal spine conical, blunt. Sternum distinctly broader than long, rugose ; mesosternal lobes as long as broad with the inner angles obtuse and rounded and the interspace widened posteriorly, subequal in width to one of the lobes. Elytra lateral, very short. Mesonotum and part of the metanotum concealed by the pronotum ; both of them, as well as the first abdominal segment are swollen, being of practically the same diameter as the pronotum, and rugose ; tympanum oval-shaped, open, covered by elytron. Hind femora thick, with the lower and upper carina acutely denticulated. Hind tibiæ feebly thickened and distinctly incurved towards the apex, armed with 8 spines on each side ; no outer apical spine ; the spurs short, but the inner ones are somewhat longer than the outer ones.

Genotype : *Lyrotylus persicus*, sp. n.

15. *Lyrotylus persicus*, sp. n.

(Plate I, figs. 3 and 4.)

♀. Brownish-ochraceous, shining. Antennæ brownish-black, not reaching the metazona. Pronotum with the hind margin somewhat swollen, callous, pale. Elytra parallel-sided, with the apex angulate, not quite reaching the hind margin of the tympanum, blackish at their base, rugosely reticulated, with the longitudinal veins scarcely perceptible, straight. Second and third tergites rugose, though less so than the first one. Hind femora pale ochraceous ; hind tibiæ brown, with the spines black-tipped.

Length of body (somewhat contracted) 34 ; pronotum 12 ; elytra 5 ; hind femora 16·5 mm.

S. W. Persia : Abadeh, vii—viii, 1916 (P. Paschen).

This remarkable insect belongs to the group *Teratodes*, but is at once distinguished from any other genus of that group by its cylindrical pronotum with but feebly developed carina, while in other genera the pronotum is more or less strongly compressed and its carina is developed into a high crest. The new genus is related to *Acrostegastes*, Karsch, of which one species is known from Zanzibar and two from Somaliland ; on the other hand, it is near to *Pelecinotus* Bol. represented by two South Indian species.

The shining, leathery surface of the insect suggests that it is hardly a member of the true desert fauna, and is more likely to occur in places with more or less dense vegetation.

16. *Leptacris filiformis*, Walk.

1870. *Leptacris filiformis*, Walker, Cat.Derm. Salt. Brit. Mus., iv, p. 676.
1902. *Capellea argenteovittata*, Bolivar, Ann. Soc. Ent. Fr., lxx, p. 616, pl. ix, fig. 33.
1914. *Leptacris greeni*, Kirby, Fauna Brit. India, Acrid., p. 211, Bombay, India : 16, ix, 1911, 1 ♀ (N. B. Kinnear).

The type of *L. greeni* agrees in all details with Bolivar's description and figures of *C. argenteovittata*, and I believe that I am quite safe in applying to the species the Walkerian name *L. filiformis*, though the type of the latter is lost.

TETTIGONIIDÆ.

17. *Himerta kinnearı*, sp. n.

(Plate I, fig. 6.)

♂. Of the size and coloration of *H. marginata*, Br. W., but differing from it strongly in the structure of the male genitalia. Last tergite large, narrowly sulcate along the middle, with the hind margin almost straight, very feebly and broadly sinuate, not obtusely excised as in *H. marginata*. Cerci shorter than in the latter species, their apical compressed portion practically straight and forming an obtuse rounded angle with the base. Subgenital plate with the lobes very long, strongly compressed and recurved, with the apices acute and turned outwardly, so that the apical portion of the plate when seen from behind is lyra-shaped.

♀ (paratype). Subgenital plate transverse, simply truncate behind. Ovipositor short, strongly recurved; its upper margin practically straight; lower margin regularly curved; disc rugulose.

Length of body ♂ 13, ♀ 13·5; pronotum ♂ ♀ 3; elytra ♂ 13, ♀ 16 wings ♂ 21, ♀ 25·5; hind femur ♂ (broken off), ♀ 18; ovipositor ♀ 4 mm.

Type ♂ from Bombay, 16, vii, 1917 (N. B. Kinnear); paratypes, 1 ♂ and 3 ♀♀ from Surat and Palamau (British Museum).

Since the male of the paratypic series agrees in its genitalia perfectly with the type, I do not hesitate in referring the females to the same species which is very close to *H. marginata* but easily separated by the above characters. I take much pleasure in naming this dainty insect after Mr. N. B. Kinnear who has found it, as well as some other new or interesting species, included in the collection of the Bombay Society.

18. *Letana nigrosparsa* (Walk.).

1871. *Phanerophera nigrosparsa*, Walker, Cat. Derm. Salt. Brit. Mus v., Suppl., p. 39.

1878. *Pyrrhicia connata*, Brunner, Mon. Phaner., p. 116.

India: Chikalda, Berar, 3,664 ft., 17, ii, 1913, 1 ♀ (N. B. Kinnear).

The type of *Ph. nigrosparsa* Walk. is a male from Bombay in a very good state of preservation and it agrees perfectly well with Brunner's description of *P. connata*.

19. *Morsimus carinatus* (Walk.).

1870. *Aprion carinatum*, Walker, Cat. Derm. Salt. Brit. Mus., iii, p. 426.

1871. *Aprion strictum*, Walker, *l.c.*, v, Suppl., p. 45.

1871. *Aprion curvifrons*, Walker, *l.c.*, p. 45.

1895. *Aprion robustus*, Brunner, Mon. Pseudophyll., pp. 74, 76.

India: Malabar Hill, Bombay, 6, ii, 1918, 1 ♀ (W. S. Millard).

Kirby in his Catalogue has quite incorrectly regarded *carinatus* Walk. as distinct from *curvifrons* Walk. since the types of both species are undoubtedly conspecific; on the other hand, he was quite wrong in synonymising *A. gracile* Walk. and *A. oculatum* Sauss. and Pict. with *M. carinatus*.

Plicigera, gen. nov.

♀. Resembling in the general habitus to *Anonconotus*, and related to it.

Vertex subequal in width to one-third of the interocular distance; its fastigium separated from the front by a short transverse line. Pronotum obsoletely rugose;

lateral keels obtuse, but distinct except at the front margin; disc flat, narrowed anteriorly, with the median keel low, but distinct, interrupted at the V-shaped sulcus; hind margin scarcely rounded; lateral lobes moderately inclined with the hind margin sinuate and the surface rugulose. Prosternum not armed. Sternal lobes thick, short, rounded. Elytra lateral. Abdomen with a distinct median carina, and with several series of elongated creases on the tergites. Subgenital plate short, convex, narrowly incised behind. Ovipositor gently recurved. Front and middle femora unarmed. Front tibiæ with one spine above on the outer margin, and one apical one. Hind femora with 2-3 spines below on the inner margin. Hind tibiæ with four apical spurs below; plantula of the hind tarsi short, but free.

Genotype: *Plicigera himalayana*, sp. n.

20. *Plicigera himalayana*, sp. n.

(Plate I, fig. 5).

♀ Brownish-castaneous, shining. Fastigium of vertex paler, but its sides blackish, as also are the first antennal joints from below. Postocular fasciæ and the upper portions of lateral pronotal lobes chocolate-brown, very shining. Elytra scarcely reaching to the hind margin of the first tergite, elliptical in shape. Pleuræ and sides of the abdomen pale castaneous, chocolate-brown and blackish in parts, very shining and smooth; the upper surface of the abdomen dull, rugulose, brownish-ochraceous, each tergite with 4—6 pairs of shining brown creases, about half as long as the tergite, and with a distinct median carina running throughout the abdomen. Last tergite more than twice as broad as long, broadly rounded, with a short incisure in the middle. Cerci conical, pointed. Subgenital plate strongly convex, scarcely longer than at the base broad; its apex narrowly incised as deep as one-third of its length; lobes rounded. Ovipositor subequal to the hind femur, feebly recurved. Hind femora with irregular striation of the inside, some small spots on the upper side of the base and an irregular fascia along the lower half of the outer side blackish-castaneous; 2—3 black spines on the lower inner margin in the apical half.

Length of body 21; pronotum 6·5; elytra 2·5; hind femora 19; ovipositor 17 mm.

Punjab: Dalhousie, x, 1917, 1 ♀ (N. B. Kinnear).

As I have mentioned in the description, this interesting Decticid is closely related to the genus *Anonconotus* represented by three species in the Alps and Apennines and supplies an evidence of some relationship of the Himalayan sub-alpine fauna to that of the Western Mediterranean mountains. The new genus is easily separated from *Anonconotus* by the peculiar sculpture of the abdomen, more developed pronotal keels, longer femora and differently built subgenital plate of the female; further characters may be found after a study of the male which remains undiscovered.

Explanation of the plate.

1. *Tropidauchen sabulosum*, sp. n., ♀ × 1½.
2. *Tropidauchen edentulum*, sp. n., ♂ × 1½.
3. *Lyrotylus persicus*, g. & sp. n., ♀ × 1½.
4. *Lyrotylus persicus*, g. & sp. n., ♀ face. × 3.
5. *Himerta kinneari*, sp. n., external genitalia of the male. × 1½.
6. *Plicigera himalayana*, g. & sp. n., ♀; S—end of the abdomen from below. × 1½.